

# [patch 1/6] Add MMC password protection (lock/unlock) support V4

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*Source:* <http://linux.derkeiler.com/Mailing-Lists/Kernel/2006-01/msg11523.html>

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- *From:* Carlos Aguiar <carlos.aguiar@xxxxxxxxxxxx>
  - *Date:* Tue, 31 Jan 2006 16:16:37 -0400
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When a card is locked, only commands from the "basic" and "lock card" classes are accepted. To be able to use the other commands, the card must be unlocked first.

This patch prevents the block driver from trying to run privileged class commands on locked MMC cards, which will fail anyway.

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Index: linux-omap-2.6.git/drivers/mmc/mmc\_sysfs.c

```
=====
--- linux-omap-2.6.git.orig/drivers/mmc/mmc_sysfs.c 2006-01-31 15:17:45.000000000 -0400
+++ linux-omap-2.6.git/drivers/mmc/mmc_sysfs.c 2006-01-31 15:22:07.000000000 -0400
@@ -16,6 +16,7 @@
```

```
#include <linux/mmc/card.h>
#include <linux/mmc/host.h>
+#include <linux/mmc/protocol.h>
```

```
#include "mmc.h"
```

```
@@ -69,13 +70,22 @@ static void mmc_release_card(struct devi
}
```

```
/*
- * This currently matches any MMC driver to any MMC card - drivers
- * themselves make the decision whether to drive this card in their
- * probe method. However, we force "bad" cards to fail.
+ * This currently matches any MMC driver to any MMC card - drivers themselves
+ * make the decision whether to drive this card in their probe method.
+ * However, we force "bad" cards to fail.
+ *
+ * We also fail for all locked cards; drivers expect to be able to do block
+ * I/O still on probe(), which is not possible while the card is locked.
+ * Device probing must be triggered sometime later to make the card available
```

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```
+ * to the block driver.
*/
static int mmc_bus_match(struct device *dev, struct device_driver *drv)
{
    struct mmc_card *card = dev_to_mmc_card(dev);
+ if (mmc_card_lockable(card) && mmc_card_locked(card)) {
+ dev_dbg(&card->dev, "card is locked; binding is deferred\n");
+ return 0;
+ }
return !mmc_card_bad(card);
}
```

Index: linux-omap-2.6.git/include/linux/mmc/card.h

```
=====
--- linux-omap-2.6.git.orig/include/linux/mmc/card.h 2006-01-31 15:17:45.000000000 -0400
+++ linux-omap-2.6.git/include/linux/mmc/card.h 2006-01-31 15:22:07.000000000 -0400
@@ -61,6 +61,7 @@ struct mmc_card {
#define MMC_STATE_BAD (1<<2) /* unrecognised device */
#define MMC_STATE_SDCARD (1<<3) /* is an SD card */
#define MMC_STATE_READONLY (1<<4) /* card is read-only */
+#define MMC_STATE_LOCKED (1<<5) /* card is currently locked */
u32 raw_cid[4]; /* raw card CID */
u32 raw_csd[4]; /* raw card CSD */
u32 raw_scr[2]; /* raw card SCR */
@@ -74,12 +75,18 @@ struct mmc_card {
#define mmc_card_bad(c) ((c)->state & MMC_STATE_BAD)
#define mmc_card_sd(c) ((c)->state & MMC_STATE_SDCARD)
#define mmc_card_readonly(c) ((c)->state & MMC_STATE_READONLY)
+#define mmc_card_locked(c) ((c)->state & MMC_STATE_LOCKED)
+#define mmc_card_clear_locked(c) ((c)->state &= ~MMC_STATE_LOCKED)
+
+#define mmc_card_lockable(c) (((c)->csd.cmdclass & CCC_LOCK_CARD) && \
+ ((c)->host->caps & MMC_CAP_LOCK_UNLOCK))

#define mmc_card_set_present(c) ((c)->state |= MMC_STATE_PRESENT)
#define mmc_card_set_dead(c) ((c)->state |= MMC_STATE_DEAD)
#define mmc_card_set_bad(c) ((c)->state |= MMC_STATE_BAD)
#define mmc_card_set_sd(c) ((c)->state |= MMC_STATE_SDCARD)
#define mmc_card_set_readonly(c) ((c)->state |= MMC_STATE_READONLY)
+#define mmc_card_set_locked(c) ((c)->state |= MMC_STATE_LOCKED)
```

```
#define mmc_card_name(c) ((c)->cid.prod_name)
#define mmc_card_id(c) ((c)->dev.bus_id)
Index: linux-omap-2.6.git/include/linux/mmc/host.h
```

```
=====
--- linux-omap-2.6.git.orig/include/linux/mmc/host.h 2006-01-31 15:17:45.000000000 -0400
+++ linux-omap-2.6.git/include/linux/mmc/host.h 2006-01-31 15:22:07.000000000 -0400
@@ -85,6 +85,8 @@ struct mmc_host {
unsigned long caps; /* Host capabilities */

#define MMC_CAP_4_BIT_DATA (1 << 0) /* Can the host do 4 bit transfers */
```

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```
+ #define MMC_CAP_LOCK_UNLOCK (1 << 1) /* Host password support capability */
+
/* host specific block data */
unsigned int max_seg_size; /* see blk_queue_max_segment_size */
Index: linux-omap-2.6.git/drivers/mmc/mmc.c
=====
--- linux-omap-2.6.git.orig/drivers/mmc/mmc.c 2006-01-31 15:17:45.000000000 -0400
+++ linux-omap-2.6.git/drivers/mmc/mmc.c 2006-01-31 15:22:07.000000000 -0400
@@ -828,6 +828,11 @@ static void mmc_discover_cards(struct mm
list_add(&card->node, &host->cards);
}

+ if (cmd.resp[0] & R1_CARD_IS_LOCKED)
+ mmc_card_set_locked(card);
+ else
+ mmc_card_clear_locked(card);
+
card->state &= ~MMC_STATE_DEAD;

if (host->mode == MMC_MODE_SD) {
```

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• **References:**

- ◆ [\[patch 0/6\] Add MMC password protection \(lock/unlock\) support V4](#)  
◇ From: Carlos Aguiar

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